

Commentary

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The paper is needful and its acceptance was a good decision, because it focuses on an important clinical problem which is the lead dependent infective endocarditis (LDIE). In the beginning authors advisably point out that the number of infective complications of electrotherapy is growing faster than the number of new systems implanted. In authors' opinion, LDIE will constitute a more and more common problem and complete system removal accompanied with proper antibiotic treatment is one and only effective therapeutic option [1]. This simple truth deserves to be repeated again and again as too many LDIE patients are for too long treated "conservatively" with fatal clinical effects. Even in year 2010. The following corroboration – having, probably, provocative character – are to stir discussion about who should remove the pacemaker (PM) or defibrillator (ICD) system in a patient such as the one demonstrated and how. In fact, authors present a case of LDIE with border indication, in whom lead could to be extracted transvenously as well as during cardiac surgery with extracorporeal circulation [2, 3].

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Selection of a method for PM/ICD system removal. An inherent feature of common medicine is a growing role of different guidelines in the management mode selection; proceedings in complications of electrotherapy should appreciate obligatory recommendations. Generally accepted recommendations always give some free choice especially in borderline cases, but general rules should be known and accepted. The first edition of recommendations for lead extraction were published in 2000 [4] and then in 2009 [5]. It was established univocally that there are four (and only four!) indications for open chest cardiac surgery for PM/ICD lead removal: 1. presence of "big vegetation", that is to say vegetation which in the case of accidental liberation can block pulmonary trunk; 2. coexisting indications for tricuspid valve repair. Very strong connecting tissue adhesions of lead body to the tricuspid valve, generating a high risk of tricuspid leaflet damage during percutaneous extraction

diagnosed before or during the procedure may be included into this or the following indication; 3. failure of transvenous lead extraction – usually extracted lead breakage with no chance to remove lead fragment using different tools; 4. complications of transvenous lead extraction as massive mediastinal bleeding, cardiac tamponade resistant to pericardium drainage or tricuspid valve damage. There is one additional relative indication for open-chest cardiac surgery: necessity of extraction of lead, with dangerous course/location (lead passing wall / structure of heart or big vessels or located outside standard caves as right atrium or right ventricle. In the above-mentioned situations lead is extracted usually percutaneously, but with real readiness for instantaneous sternotomy [5].

Ten-year experience changed general rules not so much, with the exception of acceptance of the system extraction also due to local infection as mandatory [4, 5]; the second change regarded the borderline size of vegetation which is a contraindication for percutaneous lead extraction. The experts' circle accepted this size as > 3 cm arbitrary, declaring that it is an agreed upon value at once. Vegetations of 2-3 cm were described as "*modest size*" and the selection of mode of management were left to the team, which should consider patients' pacemaker-dependence and the time of new system implantation. Exact endocardium cleaning from remnants of vegetation permits for earlier implantation of a new endocardial lead or immediate epicardial lead implantation. Vegetation location and its connection with the heart structure should be taken into consideration. Vegetation connected to the heart wall in a stable way remains usually at the site of lead extraction and is subject to a slow absorption process. Bigger vegetations, that is > 3 cm described as "*larger size*", are usually removed under direct visual control. If the risk of an open-heart surgery is increased, transcutaneous lead extraction may be considered and performed; quite a lot of such procedures were described [2, 3]. Thus 20-year experience showed (which also coincides with the development of the transvenous techniques of lead extraction) that it is a relatively safe method,

burdened with a small risk of perioperative death (much under 1% as opposed to cardiac surgery for which mortality achieves 10% [6]. In Lublin experience, among 560 procedures of transvenous lead extraction we noted 3 perioperative deaths (0.3%) and 3 deaths among 30 patients, in whom leads were removed using an open-heart surgery with extracorporeal circulation (10%) and both percentages are similar to those presented in other publications. Thus today, in 2010, we do not have any doubts as to the management option selection.

In what hospital should LDIE patients be treated? At this point there should be no doubts, either. Optimally (or better, mandatorily) in a reference centre for treatment of electrotherapy complications. In such a multidisciplinary centre, having an experienced team containing apart from an experienced lead extractor (usually cardiologist) also a cardiac surgeon acquainted with repair of big vessels of the chest too, an experienced interventional radiologist with a large spectrum of his tools, and an echocardiographer experienced in diagnosis of pacing complications. Only such a team is in a position to balance indications and contraindications for respective methods and to take an optimal decision. Realisation of a cardiac surgery option in another hospital is not optimal because close cooperation with members of such team can be necessary during every stage of management. The problem is beyond a commentary limits and readers interested in them are referred to an article devoted to this problem, which maybe will be published in this magazine soon.

The presented case contains several educative elements. Firstly, a clinical picture predominated with “pulmonary symptoms” [1]. A lot of such patients are unfortunately treated at pulmonary or tuberculosis wards for many months, sometimes until the end. Pulmonary inflammatory foci constitute symptoms of infected pulmonary embolism. Angio-CTT pictures are very useful for diagnosis as they show not only embolic foci but also enlarged hilus and mediastinal lymphatic nodes. The last ones indicate a long-term process.

ECHO analysis and removed leads’ pictures indicate that much earlier in patients’ hearts unnecessary lead loops were generated, with secondary silicone tube lead abrasion, local cloth formation with fibrotic tissue, which were infected via blood. It triggered an avalanche which was fortunately stopped with proper and early diagnosis and the whole system removal. As in the whole medicine – a bit of luck is very useful – for the surgeon and for the patient. In this case, all cut-off leads proved to be very easy to remove with simple traction from the pacemaker pocket but both leads could be strongly fixed to chest vein’s walls with connecting tissue scar adhesions and there could be a problem with the patient who was additionally treated by heparinization. One solution is to send the patient to a reference centre for transcutaneous lead extraction. As the history professes “victors are not judged” and we should congratulate our colleagues on fast-acting problem solving and presentation of an important multidisciplinary problem, which needs to be dealt with.

References

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